

REMARKS

Reconsideration for the application in view of the above amendment and the following remarks is respectfully requested.

Claims 1-22 are pending. Claims 1, 3, 10, 12-13 and 20-21 are amended. Claims 2, 11, 14-19 and 22 are canceled. New claims 23-27 are added. Support for the amendment can be found, for example, figure 28 and on page 36, line 16 to line 13 of page 37. No new matter is introduced by way of these amendments. Upon entry of this amendment, claims 1, 3-10, 12-14, 20-21 and 23-27 will be pending.

The Examiner objects to the specification for a number of informalities. Applicants have amended the specification to correct those informalities according to the Examiner's suggestion. Applicants therefore respectfully request that this ground of objection be withdrawn.

Claims 20 and 21 are objected to because of informalities. The Examiner was correct in treating them as independent claims. In fact, these claims had been treated as independent claims for purpose of payment of the claim fees. Applicants have made appropriate corrections and therefore requests that this ground of objection be withdrawn.

Claims 10 and 22 are rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claim 22 is canceled. Claim 10 is amended to read in the manner as interpreted by the Examiner, i.e., the optical functional element is actually inserted into the groove of the waveguide-embedded optical circuit. Applicants therefore request that the rejection be withdrawn.

Claims 1, 10 and 22 are rejected under 35 U.S.C. §102(b) over Japanese Patent No. JP2002182015 to Sasaki (hereafter referred as Sasaki.) Applicants traverse because claim 1 as amended is distinguishable from the device in Sasaki. Claim 1 is directed to an arrayed waveguide-embedded optical circuit comprising: a waveguide; a groove formed across the waveguide; and two or more spot-size transformer pairs whose members face each other across the groove, wherein each spot-size transformer comprises a first optical waveguide comprising a

first core and a first cladding and a second optical waveguide comprising a second core as an extension of the first cladding and a second cladding formed by a resin. In particular, the feature that the second core of the second optical waveguide is an extension of the first cladding of the first optical waveguide is not taught or suggested by Sasaki. On the contrary, Sasaki merely discloses a core 20, an up cladding 21 and a lower cladding 22 (see, Figure 2). Claim 10 as amended is distinguishable from Sasaki for the same reasons as set forth above. Moreover, claim 10 can be further distinguished from Sasaki because Sasaki fails to teach or suggest an optical functional element having birefringent plates and being inserted into a groove of an arrayed waveguide-embedded optical circuit. Claim 22 is canceled. Applicants therefore respectfully request that this ground of rejection be withdrawn.

Claim 20 is rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,130,778 to Iwatsuka (hereafter referred as Iwatsuka.) Claim 20 as amended can be distinguished from Iwatsuka in that the optical functional element is inserted in a groove of an arrayed waveguide-embedded optical circuit. This arrangement further dictates the relative locations of the birefringent plates in the manner as recited in claim 20. This feature is not taught or suggested in Iwatsuka in any way. Applicants therefore respectfully request that the rejection be withdrawn.

Claim 21 is rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,151,915 to Ohta (hereafter referred as Ohta.) Applicants traverse. In Ohta, the light entering from the optical fiber 17 is emitted to the optical fiber 18 through the magneto-optic functional element, see, for example, Figure 2 and col. 5, lines 45-60. In the present invention, however, the first birefringent plates is formed on one side of a surface of the magneto-optic functional element to intersect a light path for passing the light at predetermined intervals. This is not taught or suggested by Ohta. Applicants therefore respectfully request that the rejection be withdrawn.

Claims 2-6 and 9 are rejected under 35 U.S.C. §103(a) over Sasaki in view of U.S. Patent No. 6,363,188 to Alphonse. Claim 2 is canceled. The limitations in claim 2 are reincorporated in the amended claim 1. In addition, claim 1 further includes the limitation that the second cladding is made of resin. Claim 1 is distinguishable from Sasaki for reasons as noted above. Alphonse does not disclose or suggest a specific material for forming the outer region 130. Alphonse does not render it obvious to one skilled in the art at the time the invention was

made to use a resin second cladding given that the conventional material for covering an optical waveguide was glass. Applicants therefore respectfully submit that claim 1 (incorporating limitations of claim 2) is therefore patentable over Sasaki in view of Alphonse. Similarly, claims 2-6 and 9 are also patentable as they further limit claim 1. Applicants therefore respectfully request that the rejection be withdrawn.

Claim 7 and 8 are rejected under 35 U.S.C. §103(a) over Sasaki in view of Alphonse and further in view of Iwatsuka. Applicants traverse. Claim 7 and 8 are dependent from claim 1. Claim 1 as amended is patentable over Sasaki in view of Alphonse for reasons as noted above. Claim 7 and 8 are therefore also patentable over Sasaki in view of Alphonse as they contain further limitations from claim 1. Iwatsuka does not cure the deficiency of Alphonse in that it does not provide any teaching or suggestion that the second cladding be made of resins. Claim 7 and 8 are therefore not rendered obvious over Sasaki in view of Alphonse and further in view of Iwatsuka.

Claims 11-13, 16 and 17 are rejected under 35 U.S.C. §103(a) over Sasaki in view of Iwatsuka. Claims 11, 16 and 17 are canceled. Claims 12 and 13 are amended to depend from the amended claim 10. Applicants traverse. As noted above, claim 10 is distinguishable from Sasaki because Sasaki fails to teach or suggest that the second core of the second optical waveguide is an extension of the first cladding of the first optical waveguide, this deficiency is not cured by combining Sasaki and Iwatsuka. Applicants therefore respectfully request that the rejection be withdrawn.

Claim 18 is rejected under 35 U.S.C. §103(a) over Sasaki in view of Ohta. Claim 18 has been canceled. Applicants therefore respectfully request that the rejection be withdrawn.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Application No. 10/702,136
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All of the claims remaining in the application are now clearly allowable.
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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